

SERVICEMAN HANDBOOK

HYDRAULIC EXCAVATOR

K903-II

K904-II, K904L-II

K905-II, K905LC-II

K907-II, K907LC-II

K909-II, K909LC-II

K912-II, K912LC-II

K916-II, K916LC-II

KOBELCO

K903-II

K904-II, K904L-II

K905-II, K905LC-II

K907-II, K907LC-II

K909-II, K909LC-II

K912-II, K912LC-II

K916-II, K916LC-II

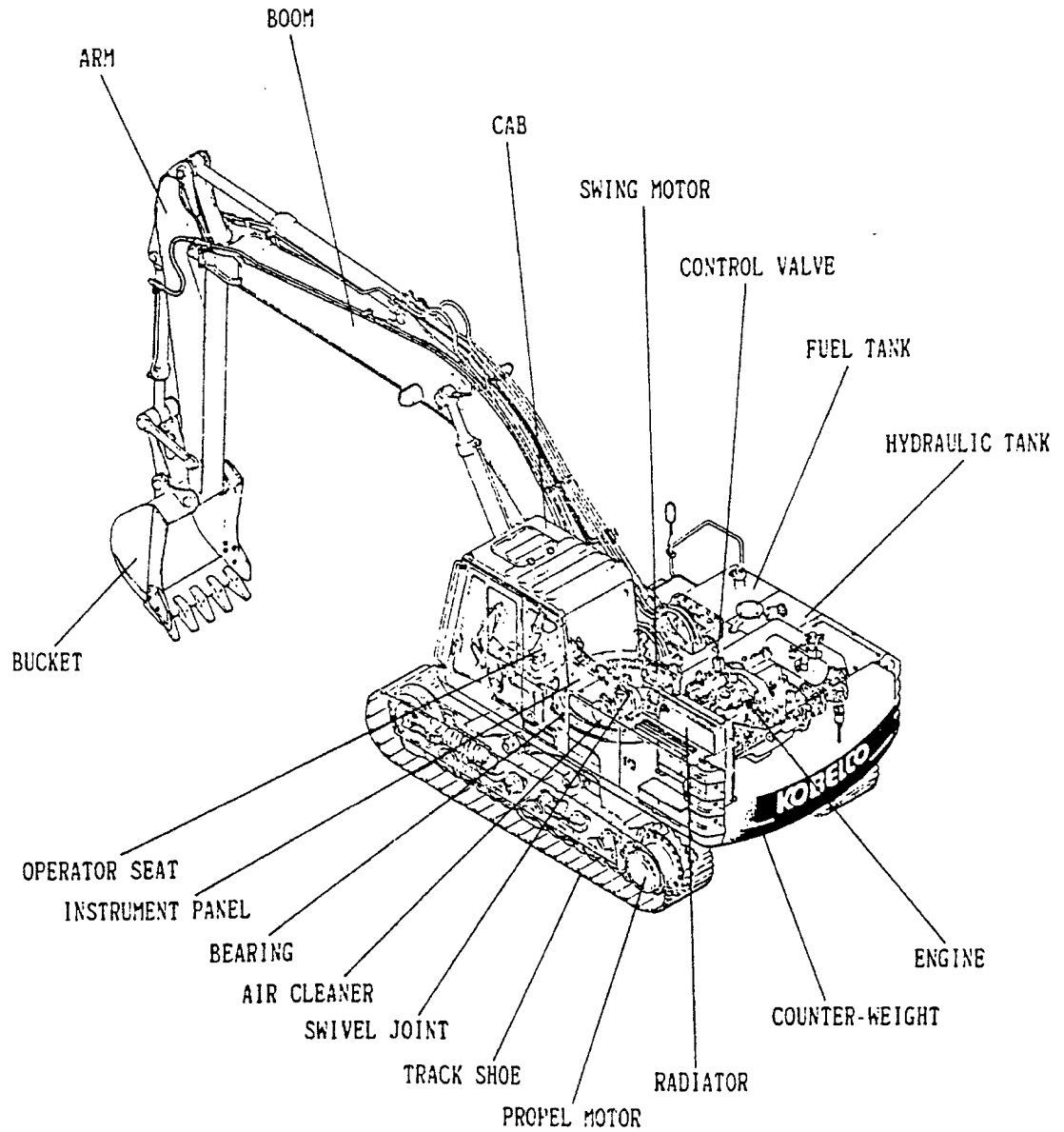
EXCAVATOR

SERVICEMAN HANDBOOK



Hydraulic Excavator

SERVICEMANS HANDBOOK



 **KOBE STEEL, LTD.**

PRINTED IN JAPAN
1990-06

APPLIED MACHINES

This serviceman's handbook provides essential information regarding the following models of shovel.

K 9 0 3 - II

K 9 0 4 - II, K 9 0 4_L - II

K 9 0 5 - II, K 9 0 5_{LC} - II

K 9 0 7 - II, K 9 0 7_{LC} - II

K 9 0 9 - II, K 9 0 9_{LC} - II

K 9 1 2 - II, K 9 1 2_{LC} - II

K 9 1 6 - II, K 9 1 6_{LC} - II

PREFACE

This serviceman's handbook for the KOBELCO hydraulic excavator provides maintenance and repair personnel with basic information concerning routine maintenance and repair of the KOBELCO machine. This handbook is compiled for the user's handy convenience using extracts mainly from the Operators and Shop Manuals. For inspection and maintenance of the machine in the field, use this handbook as a reference to improve your work efficiency.

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Specifications

Item	Model	K903-II	K904-II	K904L-II	K905-II	K905LC-II						
Std. bucket capacity	M ³ (cuyd)	0.3 (0.39)	0.4	(0.52)	0.45	(0.53)						
Range of bucket	M ³ (cuyd)	0.1~0.35 (0.13~0.46)	0.15~0.45	(0.20~0.59)	0.3~0.5	(0.29~0.78)						
Overall weight	[lbs] Ton	[14550 (16" Shoe)] 6.6(400mmShoe)	[22381 (20" Shoe)] 10.3(500mmShoe)	[26455 (20" Shoe)] 12.0(500mmShoe)	[25552 (20" Shoe)] 11.5(500mmShoe)	[25014 (20" Shoe)] 11.8(500mmShoe)						
Performance	Swing Speed	rpm	13.0	12.7		12.7						
	Travel speed	km/h(MPH)	3.9	4/5.5	(2.5/3.4)	4/5.5 (2.5/3.4)						
	Gradability	%	70(35°)	70(35°)		70(35°)						
	Digging force	Bucket	ton (lbs)	4.5 (9920)	7.3 (16090)		7.5 (16530)					
		Arm	ton (lbs)	3.5 (7720)	2.6 (5730)	6.2 (13570)	5.4 (11905)	4.7 (10260)	6.8 (14550)	5.9 (13010)	5.3 (11680)	
Arm length		m (in)	1.700 (5'6")	2.100(6'10")	1.900 (6'2")	2.270 (7'5")	2.770 (9'11")	2.100 (6'10")	2.500 (8'2")	3.000 (9'10")		
Tractive force	ton (lbs)	4.5 (10582)	6.1/8.9 (13447/19600)		5.9/9.3 (13007/20502)							
General dimensions	Arm length	m (in)	1.700 (5'6")	2.100(6'10")	1.900 (6'2")	2.270 (7'5")	2.770 (9'11")	2.100 (6'10")	2.500 (8'2")	3.000 (9'10")		
	Overall length	m (in)	5.890(19'3")	2.850 (9'4")	7.290 (23'11")	7.290 (23'11")	7.240 (23'9")	7.610 (24'11")	7.620 (25'0")	7.580 (24'10)		
	Overall width	m (in)	2.250 (7'4")	2.250 (7'4")	2.490 (8'2")	2.490 (8'2")	2.490 (8'2")	2.490 (8'2")	2.490 (8'2")	2.490 (8'2")		
	Overall height	m (in)	2.570 (8'5")	2.570 (8'5")	2.500 (8'2")	2.530 (8'3")	2.860 (9'4")	2.720 (8'11")	2.720 (8'11")	3.020 (9'10")		
	Ground clearance of undercarriage	m (in)	400 (15.7")	400 (15.7")	460 (18.1")	460 (18.1")	460 (18.1")	460 (18.1")	460 (18.1")	460 (18.1")		
Track	Overall length of crawler	m (in)	2.750 (9'8")	3.320 (10'10")	3.770 (12'4")	3.485 (11'5")	3.720 (12'1")					
	Center distance of bunnlers	m (in)	2.150 (7'1")	2.610 (8'6")	2.955 (9'8")	2.720 (8'11")	2.955 (9'8")					
	Center distance of crawler	m (in)	1.800 (5'10")	1.990 (6'6")	2.040 (6'8")	1.990 (6'6")	1.990 (6'6")					
Track	Width of track shoe	(ft-in, psi)	Grouser	(16"/4.97)	Grouser	(20"/5.12)	Grouser	(20"/4.83)	Grouser	(20"/5.40)	Grouser	(25"/7.25)
				400/0.35		500/0.36		500/0.34		500/0.38		500/0.37
	Ground pressure	kg/cm ²	(Equal height)	(20"/4.12)	(24"/4.26)	(24"/4.12)	(24"/4.55)	(24"/4.55)	(24"/4.12)	(24"/4.55)	(24"/4.12)	(24"/4.41)
				500/0.29	600/0.30	600/0.29	600/0.32	600/0.31				
Ground pressure	kg/cm ²	Flat	(24"/3.55)	(27"/3.70)	(27"/3.55)	(27"/3.98)	(27"/3.55)	(27"/3.98)	(27"/3.84)			
			600/0.25	700/0.25	700/0.25	700/0.28	700/0.27					
Ground pressure	kg/cm ²	Triangle	(16"/5.12)	Grouser (irregular height)	(27"/3.84)	Grouser (irregular height)	(27"/3.70)	Grouser (irregular height)	(27"/4.12)	Grouser (irregular height)	(27"/3.98)	
			400/0.36	700/0.27	700/0.26	700/0.29	700/0.23					
Ground pressure	kg/cm ²	Triangle	(24"/3.41)	Flat	(20"/5.12)	Flat	(20"/5.46)	Flat	(20"/5.46)	Flat	(20"/3.99)	
			600/0.24	500/0.26	500/0.26	500/0.28	500/0.25					
Ground pressure	kg/cm ²	Triangle	(27"/2.98)	Triangle	(22"/3.77)	Triangle	(22"/2.98)	Triangle	(22"/3.41)	Triangle	(22"/3.27)	
			700/0.21	800/0.23	800/0.21	800/0.24	800/0.23					
Make/Model		ISUZUJ81	ISUZUJ801		ISUZUJ8011							
Type		Water-cooled, 4 cycle direct injection type diesel engine										
Rated output power	Ps/rpm	55/2,300	76/2,300		85/2,150							
Maximum torque	kgm/rpm	18/1,800	24/1,600		30/1,600							
Number of cylinder—Bore X stroke	m (in)	4-93×102 (4-3.6"×4.0")	4-102×118 (4-4.0"×4.6")		4-102×118 (4-4.0"×4.6")							
Total displacement	cc	2,771	3,856		3,856							
Fuel consumption	g/wh	170	173		165							
Dry weight	kg (lbs)	220 (485)	325 (716)		350 (771)							
Fuel tank capacity	L (gal)	130 (34.3)	250 (66.0)		250 (66.0)							

Model		K907-II	K907LC-II	K909-II	K909LC-II				
Bucket capacity	m ³ (cu yd)	0.7	(0.92)	0.9	(1.18)				
Range of bucket	M (cu yd)	0.45-1.1	(0.59-1.44)	0.7-1.2	(0.92-1.57)				
Overall weight	(lbs) ton	[40780(24"Shoe)] 18.5(800mmShoe)	[41830(24"Shoe)] 19(800mmShoe)	[49600(24"Shoe)] 22.5(800mmShoe)	[50925(24"Shoe)] 23.1(800mmShoe)				
Swing speed	rpm	13		10.5					
Travel speed	km/h(M/h)	4/5.5	(2.5/3.4)	4/5.5	(2.5/3.4)				
Gradeability	%	70(35°)		70(35°)					
Digging Force	Bucket	ton (lbs)	11.0 (24250)	13.4 (29540)					
	Arm	ton (lbs)	8.9 (19620)	10.8 (23370)					
	Arm length	m (in)	2.940 (9'7")	2.940 (9'7")	2.980 (9'9")				
Tractive force	ton (lbs)	11/15.8	(24250/34832)	12.9/18.3	(28439/40343)				
Arm length	m (in)	2.940 (9'7")	2.940 (9'7")	2.980 (9'9")	2.980 (9'9")				
Overall length	m (in)	9.370 (30'8")	9.370 (30'8")	10.000 (32'9")	10.000 (32.9")				
Overall width	m (in)	2.800 (9'2")	2.990 (9'9")	2.990 (9'9")	3.190 (10'5")				
Overall height	m (in)	2.910 (9'6")	2.910 (9'6")	3.030 (9'11")	3.030 (9'11")				
Ground clearance of undercarriage	m (in)	470 (18.5")	470 (18.5")	490 (19.2")	490 (19.2")				
Overall length of crawler	m (in)	4.070 (13'4")	4.420 (14'5")	4.250 (13'11")	4.630 (15'2")				
Center distance of tumbler	m (in)	3.210 (10'6")	3.560 (11'8")	3.390 (11'1")	3.760 (12'4")				
Center distance of crawler	m (in)	2.200 (7'2")	2.390 (7'10")	2.390 (7'10")	2.590 (8'5")				
Width of track shoe / Ground pressure	ft-in. psi kg/cm ²	Grouser (Equal height)	(24"/6.25) 600/0.44	Grouser (Equal height)	(24"/5.83) 600/0.41	Grouser (Equal height)	(24"/7.11) 600/0.50	Grouser (Equal height)	(24"/6.68) 600/0.47
			(32"/4.83) 800/0.34		(32"/4.40) 800/0.31		(28"/6.25) 700/0.44		(28"/5.83) 700/0.41
		Flat	(24"/6.40) 600/0.45	Flat	(24"/5.97) 600/0.42		(32"/5.54) 800/0.29		(32"/5.12) 800/0.36
		Triangle	(36"/4.12) 900/0.29	Triangle	(24"/3.98) 900/0.28				
Maker/Model		MITUBISHI 6D31T		MITUBISHI 6D15T					
Type		Water-cooled, 4 cycle direct injection type diesel engine							
Rated output power	Ps/rpm	125/2,150		155/2,150					
Maximum torque	kpa/rpm	44/1,700		58/1,600					
Number of cylinder-Bore X Stroke	m (in)	6-100 X105	(6-3.9"X4.1")	6-113 X115	(6-4.4"X4.5")				
Total displacement	cc	4,948		6,919					
Fuel consumption	g/osh	160		173					
Dry weight	kg (lbs)	430 (947)		525 (1,157)					
Fuel tank capacity	L (gal)	300 (79.2)		310 (81.9)					

Item	Model	K912-II	K912LC-II	K916-II	K916LC-II				
Std. bucket capacity	M (cu yd)	1.2	(1.57)	1.8	(2.1)				
Range of bucket	M (cu yd)	1.0 ~ 1.6	(1.31~2.08)	1.2~2.0	(1.6 ~ 2.6)				
Overall weight	[lbs] Ton	[63930 (24"Shoe)] 29.0(600mmShoe)	[67900 (24"Shoe)] 31.7(600mmShoe)	[91490 (24"Shoe)] 41.5(600mmShoe)	[97880 (36"Shoe)] 44.4(900mmShoe)				
Performance	Swing Speed	rpm 9.8		9.1					
	Travel speed	km/h(M/h)	5.5/3.7	(3.4/2.3)	5.5/3.5	(3.4/2.1)			
	Gradeability	%	70	(35°)	70	(35°)			
	Digging force	Bucket	ton (lbs)	17.5	(38580)	20.5(45195)	22.0	(48500)	
		Arm	ton (lbs)	16 (35270)	13 (28660)	10 (22045)	19 (41890)	16.5 (36375)	14.7 (32410)
Tractive force	Arm length	m (in)	2.500 (8'2")	3.100 (10'2")	4.100 (13'5")	2.700 (8'10")	3.400 (11'2")	3.900 (12'9")	4.800 (15'9")
	ton (lbs)	27.0	(59520)	39.6	(87300)				
General dimensions	Arm length	m (in)	2.500 (8'2")	3.100 (10'2")	4.100 (13'5")	2.700 (8'10")	3.400 (11'2")	3.900 (12'9")	4.800 (15'9")
	Overall length	m (in)	11.150(36'3")	11.045(36'3")	11.055(36'3")	12.140(39'10")	11.980 (39'4")	11.970 (39'3")	
	Overall width	m (in)	3.200 (10'6")	3.200 (10'6")	3.200 (10'6")	3.350 (11'0")	3.350 (11'0")	3.350 (11'0")	3.350(11'0")
	Overall height	m (in)	3.450 (11'4")	3.200 (10'6")	3230 (10'7")	3890 (12'9")	3.450 (11'3")	3.450 (11'3")	
	Ground clearance of undercarriage	m (in)	520 (20.4")	520 (20.4")	520 (20.4")	530 (20.8")	530 (20.8")	530 (20.8")	530 (20.8")
Track	Overall length of crawler	m (in)	4.460 (14'7")	4.850 (16'3")	5.020 (16'5")	5.450 (17'11")			
	Center distance of idlers	m (in)	3.500 (11'5")	4.008 (13'1")	3.940 (12'11")				
	Center distance of crawler	m (in)	2.800 (8'6")	2.800 (8'6")	2.750 (8'0")				
	Width of track shoe / Ground pressure	(ft.-in. psi) kg/cm ²	Grouser	(24"/8.82) 600/0.62	(Equal height)	(24"/8.39) 600/0.59	Grouser	(24"/11.38) 600/0.80	Grouser
(Equal height)			(32"/6.82) 800/0.48	(Equal height)	(32"/6.39) 800/0.45	(Equal height)	(32"/8.82) 800/0.62	(Equal height)	(32"/8.25) 800/0.58
						(Equal height)	(36"/7.40) 900/0.52	(Equal height)	(36"/7.40) 900/0.52
Make/Model	MITSUBISHI 6D22 - T				MITSUBISHI 6D22TC				
Type	Water-cooled, 4 cycle direct injection type diesel engine								
Rated output power	Ps/rpm	230 / 1,900		290 / 2000					
Maximum torque	kgm/rpm	95 / 1,400		117 / 1400					
Number of cylinder-Bore X stroke	m (in)	6-130 X140	(6-5.1"X5.5")	6-130X140	(6-5.1"X5.5")				
Total displacement	L (cu in)	11.149	(680)	11.149	(680)				
Fuel consumption	g/psH	173		170					
Dry weight	kg (lbs)	1,040	(2290)	1,065	(2348)				
Fuel tank capacity	L (gal)	510	(134.7)	600	(158.5)				

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